

REMARKS

Claims 1-27 are pending in the present application. Claims 1-11 and 23-27 are rejected. Claims 12-22 are allowed. By virtue of this response, claims 23-27 have been cancelled and new claims 28-32 have been added. Accordingly, claims 1-22 and 28-32 are currently under consideration.

Support for new claims 28-30 and 32 can be found, for example, on page 3, lines 19-22 of the specification. Support for new claim 31 can be found, for example, on page 6, line 27 of the specification. No new matter has been added.

With respect to claim amendments and canceled claims, Applicants have not dedicated to the public or abandoned any unclaimed subject matter and moreover have not acquiesced to any rejections and/or objections made by the Patent Office. Applicants expressly reserve the right to pursue prosecution of any presently excluded subject matter or claim embodiments in one or more future continuation and/or divisional application(s).

Allowable Subject Matter

Applicants acknowledge with appreciation that claims 12-22 are found allowable.

Claim Rejections Under 35 U.S.C. § 112

Claims 1-8 and 23-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse.

Solely in an effort to expedite prosecution, claims 23-27 have been cancelled, thus obviating the rejection.

In view of the foregoing, Applicants respectfully request that the rejection be withdrawn.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-11 and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 5,674,698 (“Zarling”). Applicants respectfully traverse.

Claims 23-27 are cancelled, thus obviating the rejection. Applicants respectfully submit that Zarling does not anticipate claims 1-11 and new claims 28-32, which all depend from claim 1 directly or indirectly.

Claim 1 and its dependent claims are directed to a phosphor fluoride particle that emits light in the visible wavelength range when excited by long wavelength light that has a uniform particle size of less than 350 nanometers. Applicants respectfully submit that Zarling does not disclose such particles.

The Examiner alleges that Zarling teaches that the phosphor particles should be uniform and indicates how these particles are produced. The Examiner points to column 17, lines 45-58 of Zarling for support of such allegation.

Zarling states,

“[M]illing crystalline materials has several weaknesses. With milling, the particle morphology is not uniform, as milled particles result from random fracture of larger crystalline particles. Since the sensitivity of a detection assay using up-converting inorganic phosphor depends on the ability to distinguish between bound and unbound phosphor particles, it is preferable that the particles be of identical size and morphology.”

Zarling, column 17, lines 41-48.

Zarling went on to discuss a specific method of making phosphor oxysulfide particles in the 0.3 to 0.4 micron ranges by precipitation and annealing with a polysulfide flux. It states,

"[T]his general preparation procedure is suitable for preparing much smaller phosphor particles (e.g., 0.1 μm or smaller), which may be advantageous for various assay format."

Column 18, lines 7-10 of Zarling.

As is acknowledged by Zarling, methods generally known in the art (such as milling) do not produce particles with uniform particle sizes. Furthermore, the method of making phosphor oxysulfide particles disclosed in Zarling would not be generally applicable to all phosphor particles, particularly phosphor fluoride particles. Zarling fails to disclose a method of making phosphor fluoride particles of uniform sizes as claimed in the instant application. Absent teaching in the instant specification, one of ordinary skill in the art reading Zarling would not know how to make phosphor fluoride particles having a uniform particle size of less than 350 nanometers.

In view of the foregoing, Applicants respectfully request that the rejection be withdrawn.

Claim Rejections Under 35 U.S.C. 103

Claims 1-6, 8, 23-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,891,361 ("Kane"). Applicants respectfully traverse.

Claims 23-25 and 27 are cancelled, thus obviating the rejection. Applicants respectfully submit that Kane does not render claims 1-6, 8, and new claims 28-32 obvious.

The Examiner alleges that Kane discloses uniform fluoride phosphor particles having a particle size of less than 1 micron and concludes that such teaching would render the claimed phosphor fluoride particles having a uniform size of less than 350 nm obvious. Applicants respectfully disagree. Applicants respectfully submit that size of up-converting phosphor particles can affect the strength of particle binding and the specificity of assays. Column 17, lines 48-52 of Zarling; see also column 2, line 5-8 of Kane. As the Examiner acknowledges, Kane fails to disclose particles having a uniform size of less than 350 nm. Instead, its example discloses particle size of

about 400 nm, a size that is too large for many biological applications. See page 1, lines 22-23 of the instant specification. Absent teaching in the instant specification, one of ordinary skill in the art reading Kane would not know how to make phosphor fluoride particles having a uniform particle size of less than 350 nanometers.

Applicants further submit that claim 8 and new claims 28-32 further recite specific particle size range and uniformity. For the same reasons discussed above, Kane does not render these claims obvious.

Accordingly, Applicants respectfully submit that Kane does not render the claims obvious and request that the rejection be withdrawn.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 514572002600. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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